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(54) Title: COLLISION-RESISTANT STRUCTURE

(57) Abstract: A collision-resistant structure, for example for a ship, comprises a series of gutter sections (3) which are positioned next to or above one another, are made from a ductile material and the end edges of which are attached to the inner surface of a skin or wall (1). The gutter sections are not connected to one another by strips.

Title: Collision-resistant structure

The invention relates to a collision-resistant structure, comprising: a series of gutter sections which are positioned next to or above one another, are made from a ductile material and the end edges of which are attached to the inner surface of a skin or wall.

A structure of this nature is described in the PCT patent application PCT/NL99/00757, in the name of Schelde Maritiem B.V., which is not a prior publication. This older application is restricted to a double-walled structure in which it is specified that each gutter section base is connected to the inner skin of the structure by a partition which is at right angles to the said base. Furthermore, the bases of successive gutter sections are connected to one another by means of strips. At the beginning of a collision, these strips ensure symmetrical deformation of the two side walls of the gutter sections. The strips then break off.

Surprisingly, it has now been found that the structure can be provided with a satisfactory ability to withstand collisions and explosions if the gutter sections are not connected to one another by strips.

If the said skin or wall is the outer skin of a double-walled structure, the inner skin of the said structure may be directly attached to the gutter sections, or the inner skin of the said structure may be connected to the gutter sections by partitions which are attached at right angles to the said inner skin.

It should be noted that the abovementioned older Dutch patent application 1010794 per se describes the inner skin of a double-walled structure being attached to the gutter section by partitions attached at right angles to the said inner skin. However, in all embodiments of this older application, the gutter sections are connected to one another by strips.

The invention will now be explained in more detail with reference to the figures, in which:

Figure 1 shows a vertical cross section through a collision-resistant structure according to a first embodiment.

Figure 2 shows a vertical cross section through a collision-resistant structure according to a second embodiment.

Figure 3 shows a vertical cross section through a collision-resistant structure according to a third embodiment.

Figure 4 shows a perspective view of a collision-resistant structure according to a fourth embodiment.

The collision-resistant structure illustrated in the figures comprises a wall 1 and gutter section 3 attached to the inner surface thereof. In figure 1, the gutter sections 3 have two side walls 4 and 5 which include an angle of approximately 45°, with the wall, and a base 6 which connects the side walls 4 and 5 to one another. Compared to the invention described in PCT/NL99/00757, this structure does not have a second wall or strips which connect the base of successive gutter sections to one another, or also a partition which is at right angles to the base of each gutter section.

The embodiment shown in Figure 2 differs only slightly from the preceding figure in that the gutter sections 3 are semi-cylindrical.

Figure 3 relates to a double-walled structure, in which the inner skin 2 is directly attached to the base of the gutter sections 3.

Finally, Figure 4 shows a structure which differs from that shown in Figure 3 in that the inner skin 2 is not directly attached to the base of the gutter sections 3, but rather partitions 7 are attached at right angles to the base of the gutter sections 3 and the inner skin 2.

In none of the embodiments are the gutter sections 3 connected to one another by separate strips.

CLAIMS

1. Collision-resistant structure, comprising:

a series of gutter sections which are positioned next to or above one another, are made from a ductile material and the end edges of which are attached to the inner surface of a skin or wall, characterized in that the gutter sections (3) are not connected to one another by strips.

2. Collision-resistant structure according to Claim 1, in which the said skin or wall (1) is the outer skin of a double-walled structure, and the inner skin (2) of the said structure is directly attached to the gutter sections (3).

3. Collision-resistant structure according to Claim 1, in which the said skin or wall (1) is the outer skin of a double-walled structure, characterized in that the inner skin (2) of the said structure is connected to the gutter sections (3) by partitions (7) attached at right angles to the said inner skin.

Fig - 1

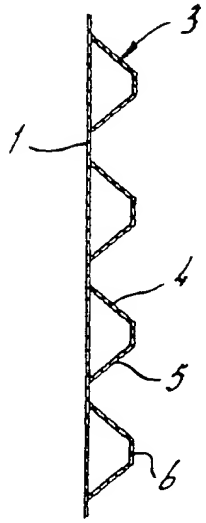

Fig - 2

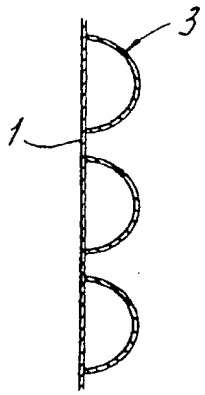

Fig - 3

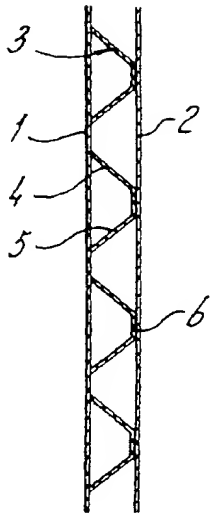

Fig - 4